

ABSTRACT OF THE DISCLOSURE

A process for the in situ formation of a selective contact and a local interconnect on a semiconductor substrate. The exposed semiconductor substrate regions of a semiconductor device structure may be treated in a plasma to enhance the adhesiveness of a selective contact thereto. The semiconductor device structure is positioned within a reaction chamber, wherein a selective contact is deposited onto the exposed semiconductor substrate regions. Any residual selective contact material may be removed from oxide surfaces either intermediately or after selective contact deposition. While the semiconductor device remains in the reaction chamber, a local interconnect is deposited over the semiconductor device structure. The local interconnect may then be patterned. Subsequent layers may be deposited over the local interconnect. The present invention also includes semiconductor device structures formed by the inventive process.

N:\2269\3380.1\cont.pat.app.wpd

201020-07-12 09:04